

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Claims 1-33 (Previously Cancelled).

Claim 34 (Currently Amended.) A structural carrier non-thermal plasma reactor element comprising:

at least one structural carrier, said structural carrier being selected from the group consisting of null dielectric barrier structural carriers, single dielectric barrier structural carriers; and double dielectric barrier structural carriers;

wherein said null dielectric barrier structural carriers comprise:

a structural carrier for providing structural support;

a first electrode layer disposed upon a first side of said structural carrier; and

a second electrode layer disposed upon a second side of said structural carrier;

wherein said single dielectric barrier structural carriers comprise:

a structural carrier for providing structural support;

a first electrode layer disposed upon a first side of said structural carrier;

a second electrode layer disposed upon a second side of said structural carrier; and

a first thin high k dielectric barrier layer disposed upon said first electrode layer for providing dielectric barrier function; and

wherein said double dielectric barrier structural carriers comprise:

a structural carrier for providing structural support;

a first electrode layer disposed upon a first side of said structural carrier;

a second electrode layer disposed upon a second side of said structural carrier;

a first thin high k dielectric barrier layer disposed upon said first electrode layer for providing dielectric barrier function; and

a second thin high k dielectric barrier layer disposed upon said second electrode layer for providing dielectric barrier function.

~~A non-thermal plasma reactor element comprising:~~

~~a first structural carrier for providing structural support;~~

~~a first electrode layer disposed upon said first structural carrier; and~~

~~a first thin high k barrier layer disposed upon said first electrode layer.~~

Claims 35-42 (Currently Cancelled).

Claim 43 (Currently Amended). The structural carrier non-thermal plasma reactor element of claim ~~39~~ 34, wherein said ~~first and second~~ structural carriers ~~are plates~~ comprise plate-shaped structural carriers.

Claim 44 (Currently Amended). The structural carrier non-thermal plasma reactor element of claim ~~39~~ 34, wherein said ~~first and second~~ structural carriers ~~are~~ comprise C-shaped structural carriers.

Claim 45 (Currently Amended). The structural carrier non-thermal plasma reactor element of claim 39 ~~34~~, wherein said ~~first and second~~ structural carriers ~~are~~ comprise tine end connectors.

Claim 46-48 (Currently Cancelled).

Claim 49 (Currently Amended). The structural carrier non-thermal plasma reactor element of claim 34, wherein said ~~first~~ structural carrier ~~is~~ comprises a swept shaped structural carrier.

Claim 50 (Currently Amended). The structural carrier non-thermal plasma reactor element of claim 49, wherein said swept shaped structural carrier comprises a double dielectric barrier extruded swept shaped structural carrier having minimal structural ligaments. first electrode layer is disposed on each side of opposite sides of said swept shaped structural carrier and said first thin high k barrier layer is disposed over said first electrode layer.

Claim 51 (Currently Amended). The structural carrier non-thermal plasma reactor element of claim 45, further comprising:

a plurality of inter-digitized tine end connectors ~~tine plates~~, each ~~tine plate~~ tine end connector having a bus connection path formed thereon.

Claim 52 (Currently Amended). The structural carrier non-thermal plasma reactor element of claim 34, wherein said structural carrier element comprises a double dielectric barrier planar extruded structural carrier element having minimal structural ligaments.

Claim 53 (Currently Cancelled).

Claim 54 (Currently Amended). The structural carrier non-thermal plasma reactor element of claim 34, wherein said structural carrier is prepared from a dielectric material having properties sufficient to provide a suitable combination of low cost, fabricability, mechanical strength and thermal properties.

Claim 55 (Currently Amended). The structural carrier non-thermal plasma reactor element of claim 54, wherein said structural carrier comprises cordierite, mullite, or alumina.

Claim 56 (Currently Amended). The structural carrier non-thermal plasma reactor element of claim 34, wherein said first thin high k barrier layer and, if present, said second thin high k barrier layer comprise ~~comprises~~ a high k material having less than about 5% porosity.

Claim 57 (Currently Amended). The structural carrier non-thermal plasma reactor element of claim 34, wherein said first thin high k barrier layer and, if present, said second thin high k barrier layer comprise ~~comprises~~ a material selected from the group consisting of bismuth strontium titanate, bismuth titanate, bismuth niobium titanate, or barium strontium titanate.

Claim 58 (Currently Amended). The structural carrier non-thermal plasma reactor element of claim 34, wherein said ~~high k barrier layer~~ one or a combination of said first thin high k barrier layer and said second thin high k barrier layer is doped.

Claims 59-66 (Previously Withdrawn).

Claim 67 (Currently Added). The structural carrier non-thermal plasma reactor element of claim 34, wherein said structural carrier non-thermal plasma reactor element is a double dielectric barrier structural carrier element comprising:

- a first double dielectric barrier structural carrier;
- a second double dielectric barrier structural carrier; and
- spacers arranged to provide an exhaust gas passage between said first and second double dielectric barrier structural carriers.

Claim 68 (Currently Added). The structural carrier non-thermal plasma reactor element of claim 34, wherein said structural carrier non-thermal plasma reactor element is a single dielectric barrier structural carrier element comprising:

- a first single dielectric barrier structural carrier;
- a second single dielectric barrier structural carrier; and
- spacers arranged to provide an exhaust gas passage between said first and second single dielectric barrier structural carriers.

Claim 69 (Currently Added). The structural carrier non-thermal plasma reactor element of claim 34, wherein said structural carrier non-thermal plasma reactor element is a single dielectric barrier structural carrier element comprising:

- a double dielectric barrier structural carrier;
- a null dielectric barrier structural carrier; and
- spacers arranged to provide an exhaust gas passage between said double dielectric barrier structural carrier and said null dielectric barrier structural carrier.

Claim 70 (Currently Added). The structural carrier non-thermal plasma reactor element of claim 34, wherein said structural carrier non-thermal plasma reactor element is a null dielectric barrier structural carrier element comprising:

- a first null dielectric barrier structural carrier;
- a second null dielectric barrier structural carrier; and
- spacers arranged to provide an exhaust gas passage between said first and second null dielectric barrier structural carriers.

Claim 71 (Currently Added). The structural carrier non-thermal plasma reactor element of claim 34, wherein said structural carrier non-thermal plasma reactor element is a C-shaped double dielectric barrier structural carrier element comprising:

- a first C-shaped double dielectric barrier structural carrier;
- a second C-shaped double dielectric barrier structural carrier;
- wherein said first and second C-shaped double dielectric barrier structural carriers are arranged to provide a C-shaped double dielectric barrier structural carrier element including an exhaust gas passage formed between said first and second C-shaped double dielectric barrier structural carriers.

Claim 72 (Currently Added). The structural carrier non-thermal plasma reactor element of claim 34, wherein said structural carrier non-thermal plasma reactor element is a C-shaped single dielectric barrier structural carrier element comprising:

a C-shaped double dielectric barrier structural carrier;

a C-shaped null dielectric barrier structural carrier;

wherein said C-shaped double dielectric barrier structural carrier and said C-shaped null dielectric barrier structural carrier are arranged to provide a C-shaped single dielectric barrier structural carrier element including an exhaust gas passage formed between said C-shaped double and C-shaped null dielectric barrier structural carriers.

Claim 73 (Currently Added). The structural carrier non-thermal plasma reactor element of claim 34, wherein said structural carrier non-thermal plasma reactor element is a C-shaped null dielectric barrier structural carrier element comprising:

a first C-shaped null dielectric barrier structural carrier;

a second C-shaped null dielectric barrier structural carrier;

wherein said first and second C-shaped null dielectric barrier structural carriers are arranged to provide a C-shaped null dielectric barrier structural carrier element including an exhaust gas passage formed between said first and second C-shaped null dielectric barrier structural carriers.

Claim 74 (Currently Added). The structural carrier non-thermal plasma reactor element of claim 34, wherein said structural carrier non-thermal plasma reactor element is a double dielectric barrier inter-digitized tine structural carrier element comprising:

- a first double dielectric barrier tine end connector structural carrier; and
- a second double dielectric barrier tine end connector structural carrier;

wherein said first and second double dielectric barrier tine end connector structural carriers are combined to provide a double dielectric barrier inter-digitized tine structural carrier element.

Claim 75 (Currently Added). The structural carrier non-thermal plasma reactor element of claim 34, wherein said structural carrier non-thermal plasma reactor element is a single dielectric barrier inter-digitized tine structural carrier element comprising:

- a double dielectric barrier tine end connector structural carrier; and
- a null double dielectric barrier tine end connector structural carrier;

wherein said double and null dielectric barrier tine end connector structural carriers are combined to provide a single dielectric barrier inter-digitized tine structural carrier element.

Claim 76 (Currently Added). The structural carrier non-thermal plasma reactor element of claim 34, wherein said structural carrier non-thermal plasma reactor element is a null dielectric barrier inter-digitized tine structural carrier element comprising:

- a first null dielectric barrier tine end connector structural carrier; and
- a second null dielectric barrier tine end connector structural carrier;

wherein said first and second null dielectric barrier tine end connector structural carriers are combined to provide a null dielectric barrier inter-digitized tine structural carrier element.